

# Oak Ridge Health Studies Document Summary Form

DOCUMENT TITLE:

3026 Incident of April 29, 1954

DOCUMENT NUMBER OR IDENTIFIER: \_\_\_\_\_

AUTHOR(S): W. M. Stanley

PUBLICATION DATE: 5/3/54  
5/10/54

DATA TIME PERIOD: Start 4/29/54  
Stop

CLASSIFICATION CATEGORY: UNK UNC OUC UCNI CL\* \*Category & Level: FRD or RD or NSI; CONF or S or TS

SITE(S) DOCUMENT ADDRESSES: K X Y S ORR MELT CLIN WOC WOL POPL EFPC PCE BEAR WATT

SOURCE/LOCATION OF DOCUMENT: X-10 DOC : Operations Division-General (1954)

DOCUMENT CATEGORY

DF

AI [DL dr dc da] [ED ea ew es ef] EP [HO hp hr hs hw] IN IP [ST sa sw ss] TM WP

Primary category - circle once; Secondary category (optional) - circle twice. Circle only one in a bracketed group.

DATE ENTERED INTO DATABASE:

BY:

InMagic No.

KEYWORDS:

incident air  
uranium

ABSTRACT:

Collection of memos describing a radiation incident in the 3026 Building (X-10) on 4/29/54. The incident involved a dissolving reaction using Hanford (uranium) slugs and nitric acid that "got away". The reaction forced hot solution and vapor from the slug chute and solution addition lines to the top of the cell block. The incident necessitated a partial evacuation of the laboratory. Reading Downwind readings are given.

ChemRisk Document No. 2667

COPY AT: ALC

REVIEWER: G M Bruce

DATE REVIEWED: 3/28/96

FILE *Operation 82X*

# INTER-COMPANY CORRESPONDENCE-----

(INSERT NAME) COMPANY OAK RIDGE NATIONAL LABORATORY Operated By CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO  
LOCATION

M. E. Ramsey  
Building 450

DATE May 3, 1954

ATTENTION  
COPY TO

2	LARSON, C. E.	8.E.8
1	RAMSEY, M. E.	7/15/54
3	BLAUER, H.	
5		
COPY TO (DATE SENT)		

ANSWERING LETTER DATE

SUBJECT 3026 Incident 4/29/54  
4:48 p.m.

At approximately 5:00 this office was informed of a radiation incident in 3026 Building by Guard Headquarters. On arrival it was found that a dissolving reaction involving Hanford material and nitric acid had gotten away, blowing dissolver solution back onto the top level of the 3026 cell block. A plume of nitric fumes could be seen billowing from the third level windows, east side. Steps were taken immediately to see that 3026 and the Isotope Area were evacuated. Building 3026 was evacuated almost immediately, all personnel making use of masks in their escape. The Isotope Area was evacuated next. All personnel here were in 3037 and 3038. As the reaction causing the activity was still going personnel were sent back into Building approximately 5:02 with chemox masks to stop it. This was done by turning water on A-1 jacket and condenser coil at 2nd level of the building. The reaction was controlled and off gas recovered within about ten minutes of the initial burst. Road blocks were established next at the west end of the tank farm running north from White Oak Avenue. (These blocks were later moved in to the N. E. sector bounded by Central and Fourth Street). All evacuees were warned to move west. At about this time (approximately 5:20) it had been determined that 3550, 4500, 4501 and 4505 were not involved and these people advised that they could remain in their buildings but to be ready to leave.

Down wind from the scene (N. E. of 3026) happenings were approximately as follows. The Guard Department dispatcher was instructed to evacuate Post #16, LITR, and 3010 by telephone at approximately 5:04. While receiving the above by radio, the LITR called in to find a H. P. man. The LITR was appraised of the spill problem. Immediately thereafter one of the 3010 personnel appeared at the Control Room also in search of H. P. aid. He was told of the problem and asked if any people remained in 3010. None remained. The LITR was down and evacuated at 5:15, and it is assumed that the 3010 group were out by about 5:10. Unfortunately no early attempt was made to evacuate 3025. One person here evacuated when hearing the air monitors. One person remained downstairs out of earshot of the monitors and was not evacuated until 6:00. He received no known exp.

At approximately 6:00 M. E. Ramsey, H. Blauer and shortly thereafter, Dr. Larson were appraised of the difficulty. Upon arrival of 3026 supervision a break was taken for food. Thereafter, efforts were made to decontaminate 3026 cell block by directing a gentle flow of water down from above, and area and building investigation started. Upon suggestion of 3026 supervision, 4-12 janitors were held and a driver called in to spray the roads on 12-8 shift.

Unfortunately several incidents were noted that could not be considered the best from an emergency standpoint. First, although the LITR has numerous CAM's, the general attitude toward them is one of mistrust. Also, at the time of this incident, no gas masks were available here. At Building 3010 the situation was

ChemRisk Document No. 2667

*David R. Hamlin*  
4/6/54  
Date  
Technical Information Officer  
ORNL Site

the same regarging masks. Here the initial burst of radiation shut down the reactor and trouble at the LITR was suspected. First report from here indicated that their CAM was disconnected. (This has since proven wrong). However, as best can be determined information of air activity, here, was gotten from outside rather than building instruments. Still further regarding this group, a minor stir was created when one member upon reaching the canteen waving a cutie-pie advised evacuation. The entire group, one heavily contaminated, then proceeded to the Dispensary to contact the L. S. S. for aid.

W. M. Stanley fr.  
W. M. Stanley

# INTER-COMPANY CORRESPONDENCE

OAK RIDGE NATIONAL LABORATORY

Operated By

(INSERT  
NAME)

COMPANY

CARBIDE AND CARBON CHEMICALS COMPANY

LOCATION

Post Office Box P  
OAK RIDGE, TENN.

TO M. E. Ramsey  
LOCATION Building 4500

DATE May 3, 1954

ANSWERING LETTER DATE

ATTENTION  
COPY TO

SUBJECT Area Contaminated from April 29  
Incident as of 8:00 a.m. May 3

At this time there are two general areas that remain contaminated from this incident. One area is the highly contaminated Rala Process (Building 3026) and the other is the buildings within the Exclusion Area i. e., Rolling Mill (Building 3012), Bulk Shielding (Building 3010); LITR (Building 3005), and the shops in Building 3006. The latter are contaminated from a few hundred counts per minute up to about 5 mr/hr. This area presents a problem only as to the contamination of personnel clothing and does not restrict work in this area.

At the Rala Process contamination has remained at virtually the same level for the last two days. The readings at various places in the building are as follows:

1st Level	Panel Board 7A	50-100 mr/hr
2nd Level	Panel Board 1	150 mr/hr
	HP Office Door	150-200 mr/hr
3rd Level	Top of Stairs	1 to 2 R
	Slug chute	

On Friday it was decided to abandon the building until 12:01 a.m. Monday. The same action was taken in respect to the Exclusion Area except for the LITR and the Bulk Shielding Laboratory. All groups found work outside of the affected areas for their personnel for Friday. All hard top roads in the exclusion area were sprayed with water from a tank truck and the contamination level was reduced from about 5 mr/hr to 2 mr/hr.

Each group occupying space in the Exclusion Area was instructed to schedule small decontamination crews to work on Sunday. These crews were to be made up of the craftsmen and janitorial help as needed for the purpose of cleaning up their own respective work areas and equipment.

On Sunday it was discovered that the Electrical Sub-Station (Building 3000) received some contamination with the screen doors reading the highest (4 mr/hr).

At 8:00 a.m. Monday the Exclusion Area was open to employees wearing yellow coveralls and shoe covers. Eating was forbidden within this area and an HP check was required upon leaving the area. A temporary screen was placed at the area gate where personnel could remove contaminated clothing.

*W. G. Egan*

## INTER-COMPANY CORRESPONDENCE-----

(INSERT NAME) COMPANY OAK RIDGE NATIONAL LABORATORY  
 Operated By CARBIDE AND CARBON CHEMICALS COMPANY LOCATION Post Office Box P OAK RIDGE, TENN.

TO C. E. Larson  
 LOCATION Building 4500

ATTENTION  
 COPY TO K. Z. Morgan  
 A. F. Rupp

2	LARSON, C. E.	
3	RAMSEY, M. E.	<i>MER</i>
4	RUEFF, P. W.	<i>R</i>
5	SEAGREN, H. E.	
COPY TO (DATE SENT)		

DATE April 30, 1954, 8:00 a.m.

ANSWERING LETTER DATE

SUBJECT AREA CONTAMINATION ON  
 APRIL 29, 1954

About 5:15 p.m. on April 29, 1954, a large amount of activity was released on top of the RaLa process cell in Building 3026D. The activity was released from the slug dissolver through the slug loading chute and solution addition lines during addition of nitric acid (about 390 pounds of 60%) for a dissolving. One hundred and one Hanford slugs had been loaded for this run and three successful dissolvings of about eighteen slugs each had already been made. Release of the activity continued for about two hours, i.e., until such time as the reaction was controlled enough for the regular hot off gas system to take care of it. Between the third dissolving and the fourth (this one) the slugs were allowed to set dry in the dissolver for about twenty-eight hours, i.e., no solution covered them (this is customary). It is at present thought that during this time the slugs became very hot thermally (indications are that these slugs are some hotter radioactively than any previously received), and upon addition of the nitric acid a much faster reaction than usual was experienced. (Operations will write a complete report of the incident.)

The wind direction during this time was mostly from south. Of the major buildings high air activity occurred in RaLa Process (Building 3026), Radioisotope Area (all buildings), Rolling Mill (Building 3012), Bulk Shielding Reactor (Building 3010), LITR (Building 3005), Hot Research Shop (Building 3006), and later to some extent in the Graphite Reactor (Building 3001). The high activity was noted by the people in the occupied buildings, 3010 and 3005, and evacuation was complete by about 5:25 p.m. The LITR was shut down from 5:15 p.m. to 7:32 p.m.; the Graphite Reactor was shutdown from 6:00 p.m. to 7:08 p.m. There were seven people in this area at the time of the initial release, one in LITR, four in Bulk Shielding Reactor, and two guards at Post #16. The personal clothing of these people was contaminated, and was taken by Health Physics. The people were cleaned up to about tolerance levels and left the plant at midnight. The operators and analytical people in 3026D, RaLa Process Building, evacuated the building immediately on hearing the radiation monitors and were not contaminated.

After the incident some attempt was made to start cleaning the top of the RaLa Cells from the windows on the roof about twenty feet above the cells. The radiation levels at these windows was greater than 10 R/hour. Because of the very high radiation levels and the doubt of the effectiveness of the decontamination work tried, this was temporarily abandoned

April 30, 1954

and the effort was concentrated on the other major buildings involved. Sixteen janitors were held over from the 4-12 shift for decontamination work. All horizontal surfaces in Buildings 3037, 3038, 3006, 3005, and 3010 were cleaned and indications at 7:30 a.m. are that they are below tolerance. Except for Building 3026, the level of contamination was about 1 to 5 mr/hour. The only major building contaminated except 3026 and not cleaned by 8:00 a.m. is the Rolling Mill, Building 3012. The roadways in the area involved were washed and all seem to be below tolerance levels at 8:00 a.m.

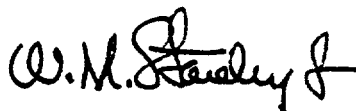
All people involved in the incident and later in the high level decontamination work are being given the standard HP check including urine checks, etc. A preliminary check of some of the film badges is attached. Health Physics will write a complete report of the incident from their angle.

Samples were taken of the Settling Basin: Outlet at 7:00 a.m. showed 235 counts; inlet sample showed 651 counts at 7:00 p.m., 10,335 counts at 11:00 p.m. and 1,117 counts at 3:00 a.m. White Oak Dam checks at 2:30 a.m. showed 24 counts and at 5:30 a.m. showed 16 counts; it will be several hours before this activity reaches the dam.

Present indications are that the activity has a half life of about twenty hours. Radiation seems to be generally very hard.

Radiation levels in Building 3026D reached more than 100 R/hour on the third level. At 7:00 a.m. the first floor was about 100 mr/hour and air activity was below tolerance levels. Processing of the first part of the RaLa run is proceeding; because of the apparent rapid decay it is planned to wait until Sunday night before trying to continue with the second part.

The air monitor at the rock quarry on Bethel Valley Road showed a very slight rise after the incident.



Laboratory Shift Supervisor

Attachment:  
HP Check mentioned  
above.

EMK:jl

# PRELIMINARY H.P. REPORT

<u>Name</u>	<u>Badge #</u>	<u>MREP</u> (Soft)	<u>MR</u> (Hard)	<u>PTR</u> (Probable Total Reading)
[REDACTED]	[REDACTED]	420	90	330
[REDACTED]	[REDACTED]	2525	580	1945
[REDACTED]	[REDACTED]	2090	430	1660
[REDACTED]	[REDACTED]	4700	1250	3450
[REDACTED]	[REDACTED]	2525	530	1995
[REDACTED]	[REDACTED]	0	0	0
[REDACTED]	[REDACTED]	290	45	245
[REDACTED]	[REDACTED]	750	90	660

# INTER-COMPANY CORRESPONDENCE

(INSERT  
NAME)

COMPANY

OAK RIDGE NATIONAL LABORATORY

Operated By

CARBIDE AND CARBON CHEMICALS COMPANY

LOCATION

Post Office Box P  
OAK RIDGE, TENN.

TO  
LOCATION

M. E. Ramsey  
Building 4500

1	LARSON, C. E.	DATE	May 10, 1954
2	RAMSEY, M. E.	ANSWERING LETTER DATE	
3	RUEFF, H. W.	SUBJECT	3026-D Incident of April 29, 1954
4	SEARCHED	COPY TO (DATE SENT)	
5			
6			
7			
8			
9			

ATTENTION  
COPY TO

A. M. Weinbe  
K. Z. Morgan  
A. F. Rupp

At 4:58 p.m. on the afternoon of April 29, 1954, a radiation incident occurred in Building 3026-D, which necessitated a partial evacuation of the Laboratory and which contaminated a considerable area north and northeast of the building. An account of the events just prior to and after the incident are as follows:

At about 4:56 p.m. (estimated) one of the operators on duty in Building 3026-D went to the third level (top) of the process cell, started addition of nitric acid to the dissolver, and went back to the second level (instrument panel). Upon the acid contacting the material in the dissolver (uranium slugs), a violent reaction occurred. It is now believed that the material, more active than usual, was thermally hot. The reaction forced hot solution and vapor from the slug chute and solution addition lines to the top of the cell block. As this occurred, air monitors and monitrons within the building began to alarm. All personnel in the building donned gas masks and evacuated immediately.

As process and laboratory personnel emerged from the building the shift Guard Captain was in his car immediately across the street. Seeing the hasty exit and the orange fumes escaping from upper windows, the captain radioed immediately for the Health Physics Supervisor and the Laboratory Shift Supervisor. The time, established from recorded radio transmission, was 4:58 p.m. The H.P. man and the ISS arrived in approximately three minutes, or at 5:01 p.m. The incident was discussed and the fact that the dissolver cooling water was off and that most of the acid was in the dissolver was established. The 3026-D supervisor and one of his men re-entered the building immediately, wearing chemox masks and carrying 10 R Cutie-Pies. Water was turned on to the dissolver jacket to stop further reaction and prevent solidification of UNH. Before leaving the building it was observed that off-gas vacuum had been regained. This probably occurred when sufficient acid had run in to cool the material.

As this was being done, the Isotope Area was alerted and evacuated (six employees), as it seemed to be immediately down-wind. All evacuees were congregated up-wind from the scene and checked for contamination. At 5:03 p.m. Post 16, directly north of the scene, was evacuated and the guard sent to the west end of Building 3019. At about 5:06 p.m. Building 3550 was found unaffected and a check on Building 4500 was started. The actual situation in Building 4500 was not known until about 5:20 p.m.; however, events in between showed the wind to be more to the north. Word was given to the shift groups here, however, to alert them.

At about 5:08 p.m. the LITR called Guard Headquarters in search of a Health Physics man, and was told that the H.P. man was on an emergency at Building 3026. At 5:10 p.m. the Guard Dispatcher was instructed by radio to advise the LITR and Building 3010 to evacuate if their air monitors so indicated. The Dispatcher was also instructed at this time to close the East Portal and recall the guard there to headquarters. (This man was actually sent back to Building 4500 and posted at the east end). At the time of the above radio transmission the LITR was again in telephone contact with the Guard Dispatcher and overheard the transmission. He said he was evacuating. (It was later found that the LITR was evacuated at 5:14 p.m.). Directly after the above one of the 3010 men entered Guard Headquarters in search of Health Physics aid. He was apprised of the situation and asked if Building 3010 was evacuated. It had been, and a reasonable estimate of the time seems to be about 5:07 p.m.

The ISS was advised of the LITR and Building 3010 evacuations at 5:17 p.m. At 5:30 p.m. road blocks were established, blocking the northeast quadrant bounded by Central Avenue and Fourth Street. At about 5:40 p.m. Mr. H. Blauer, Chief Supervisor of Building 3026, was notified by telephone of the situation. At 5:43 p.m. AEC Patrol offered assistance with road blocks; this offer was declined with thanks. At about 5:50 p.m. Mr. M. E. Ramsey was advised of the situation, and shortly after 7:00 p.m. Dr. C. E. Larson was notified. At 6:00 p.m. the Graphite Reactor was shut down and evacuated. Although the air monitors were brought back on scale after the initial burst of activity, supervision in this building reported that they were not performing reliably. Shortly after 6:00 p.m. Mr. Blauer, Mr. E. J. Witkowski, and several representatives of Health Physics began to arrive. The situation as it existed was gone over and time taken for a bit of food.

Shortly after 7:00 p.m. more thorough surveys of contaminated areas were started. Also at this time efforts were started to reduce the activity on top of the 3026 process cell. This was done by lowering a forty-foot length of aluminum tube through an upper window to the cell top. Water was then directed at the spill through this tube. Within two hours this effort was discontinued, as no appreciable effect was gained.

By approximately 10:00 p.m. it had been determined that little more could be done at Building 3026, and that the most profitable course would be to emphasize checking and cleaning the contaminated area north and northeast of the release. To assist in this effort the evening shift janitor crew (16 men and a foreman) was held on the midnight shift, and a truck driver called in to operate the street cleaning truck. At about this time or earlier personnel re-checks and lists for special meter processing and urinalysis were started. All contaminated clothing not collected immediately following the incident was confiscated and replaced with Company clothing as necessary.

During the midnight shift the janitor crew mopped or wiped all horizontal surfaces in involved major buildings except in Buildings 3012 and 3026. The roads within the area were washed thoroughly with the wash truck. Although the above bettered the situation, it was found on the following day that considerable clean-up remained. At 8:00 a.m. on April 30 contamination in the buildings cleaned (3037, 3038, 3005, 3006, and 3010) was from 1 to 5 mr/hr. Checks on water activity at White Oak Dam were started on the midnight shift and followed for increasing activity. At no time did the activity here become serious.

On Friday April 30, a general plan of attack was drawn. This involved 1) - restricting entry into the contaminated area, requiring shoe covers and yellow coveralls; 2) - restricting vehicular traffic in this area to hard surface roads (these were re-washed on Friday, April 30); 3) - scheduling personnel of affected groups, with janitorial and health physics help, on Sunday, May 2, for an organized decontamination effort; 4) - delaying any efforts at 3026-D until 8:00 a.m. on Monday, May 3. On Sunday, May 2, a total of 22 people other than shift personnel worked on clean up of the contaminated area; included were 11 departmental, 7 janitorial, and 4 health physics people. Approximately 6 shift people worked with them or upon their respective areas.

Going back and covering a bit more in detail the happenings in areas other than Building 3026-D at the time of the release, the following is found:

At Building 3010 the first indication of trouble was a reactor "scram". The first thought here was that the LI TR had, by opening a hole or exposing a source, caused a radiation "scram". Air monitors here were not noted. Word of the condition reached them when one of their people called in to warn them. This man was at or near Post 16 at the time of the release, and at Post 16 when the guard was directed to move west. The time was 5:05 p.m. This man proceeded on foot to the Cafeteria, warning people here of high activity. He was in possession of a contaminated Cutie Pie. From here he proceeded to the Dispensary, where he was joined by others who had evacuated by truck. First contact with these people by the ISS was at the Dispensary. They were instructed to be extremely cautious of any contaminated clothing. Later conversation with the group indicated that air monitors were not noted and may have been shut off. It was established later that they were on and operating. It might be added that gas masks were not available here.

At the LI TR, the initial release found the supervisor at Building 3001. Air monitors in open areas were off scale. The supervisor checked briefly for local trouble and called Guard Headquarters seeking H.P. aid at 5:08 p.m. It was determined that the air activity was general, Guard Headquarters was called again, and the building was evacuated upon overhearing radio transmission made at 5:10 p.m. The LI TR was down at 5:14 p.m. and brought back up at 7:32 p.m. Here also no gas masks were available.

At 3001, the Graphite Reactor, the initial burst of activity was noted but the air monitors were brought back on scale by changing filters. This building remained occupied until 6:00 p.m., when the air monitors were not considered by supervision to be operating reliably. At this time the reactor was shut down; it was brought back up at 7:00 p.m.

At Building 3025, air monitors on the main floor sounded immediately after the release. The only man upstairs evacuated. At about 6:00 p.m. another man was discovered working in the basement of this building, out of earshot of the air monitors. He was evacuated at this time, and it was later found that he received a negligible exposure.

Generally, comparing radiation levels just following the incident\* and on Friday, May 7, we find the following:

	<u>5:00 p.m.</u> <u>April 29</u>	<u>4:30 p.m.</u> <u>May 7</u>
Building 3026-D		
First Level	750 mr/hr	100 mr/hr
Second Level	7-8 r/hr	150 mr/hr
Third Level (Spill area)	~ 100 r/hr	10-20 r/hr
Roadways Northeast of 3026	5-10 mr/hr	Below background
Buildings Northeast of 3026		
Exterior walls	10-20 mr/hr	< 1 mr/hr
Table tops, etc., inside	4-5 mr/hr	< 1 mr/hr (Only where decontaminated)
Grass and Grounds Northeast of 3026	10-15 mr/hr	4-5 mr/hr.

\*( Contamination levels in the involved area, except for Building 3026, were roughly the same as those experienced by the Laboratory from the Nevada bomb test fall-out in March 1953).

Personnel involved were in some cases contaminated to 40-50 mr, but were able to clean up reasonably well before leaving. Of those involved only five lost their personal clothing, and three more surrendered company clothing to Health Physics. A film meter survey of 123 people known to be in the plant showed that none received serious exposure. Similar results were indicated from thyroid counts and urinalyses taken only on those most closely involved.

W. M. Stanley (EK)  
Laboratory Shift Supervisor

WMS:bb

E 33,000

E 32,500

E 32,000

E 31,500

TO 0902 (003)

TO 0901 (001)

TO 0904

0000000000

First Survey -  
greater than 100 R/hr on  
top of cell down to N 2 R.  
other parts of Bldg.  
up to 30 m/hr.  
up to N 5 m/hr.

N 21,000

N 22,500

4000-4499

DRIVE

AVENUE

STREET

FOURTH

CIRCLE

CIRCLE

ISOTOPE

ISOTOPE

3002

3003

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

3014

3015

3016

3017

3018

3019

3020

3021

3022

3023

3024

3025

3026

3027

3028

3029

3030

3004

3005

3006

3007

3008

3009

3010

3011

3012

3013

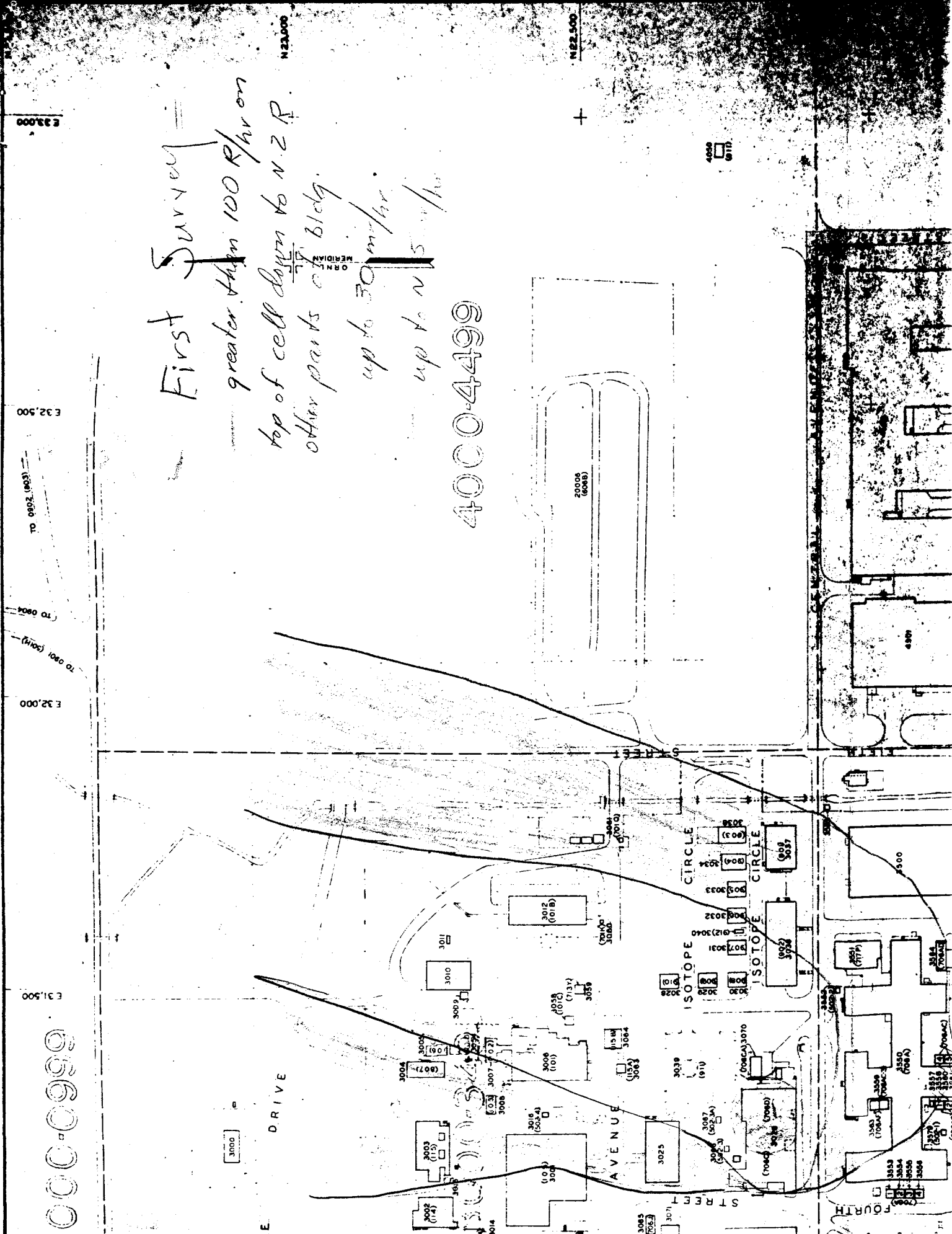
3014

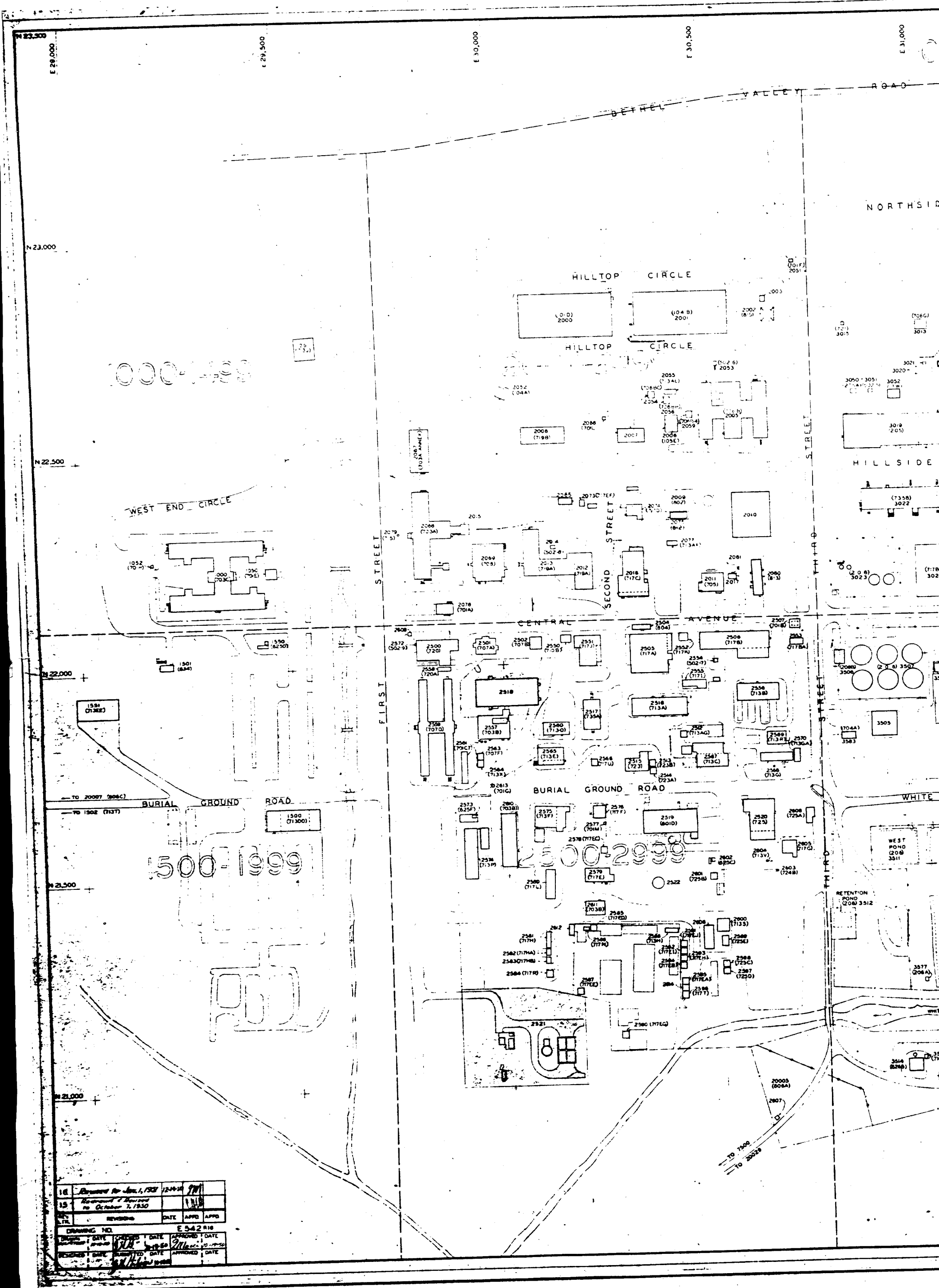
3015

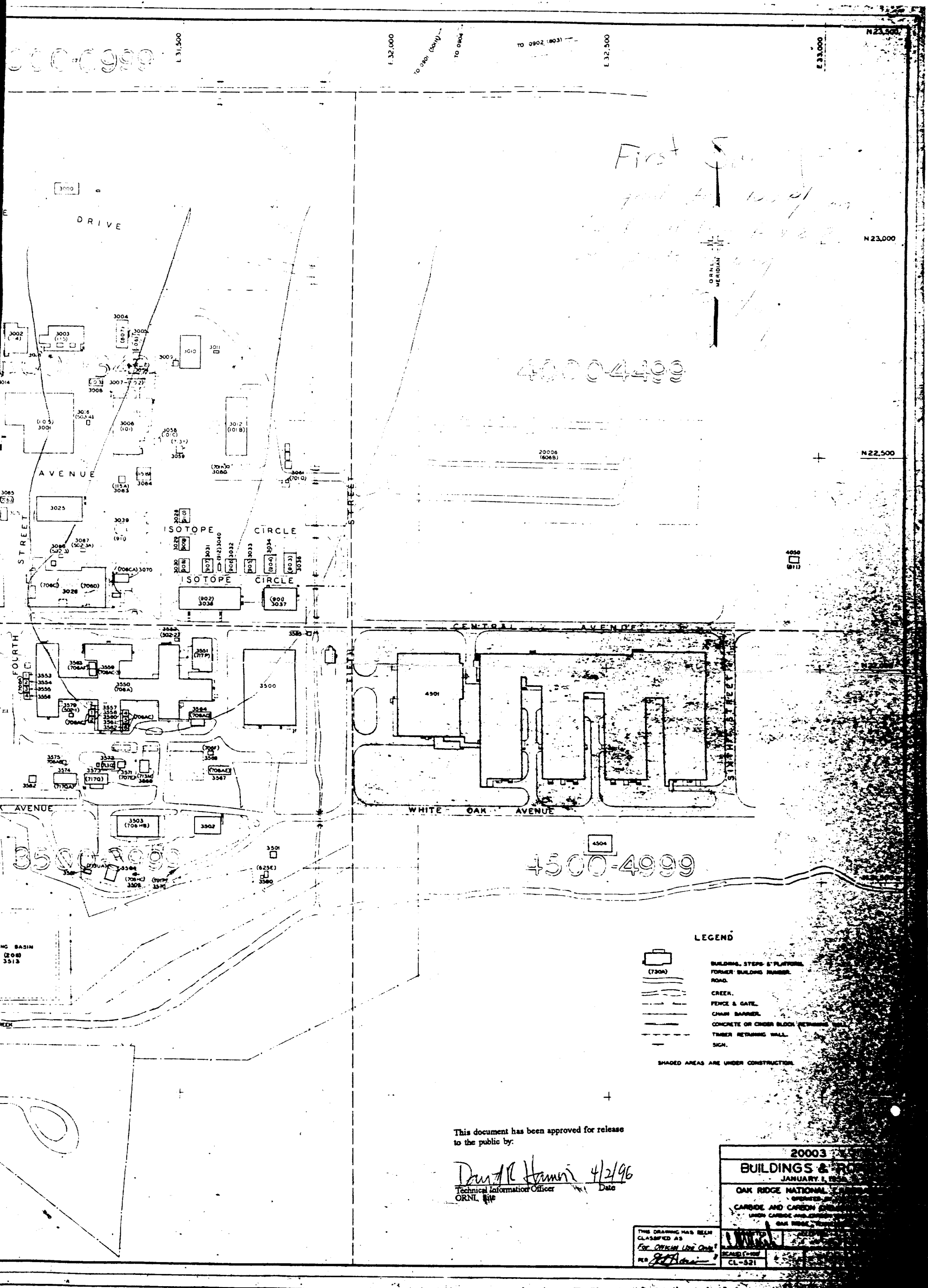
3016

3017

4000499







First Survey  
good for map  
of building area  
of Oak Ridge  
Lab

4000-4499

4500-4999

LEGEND

- BUILDING, STEPS & PLATFORM  
FORMER BUILDING NUMBER  
ROAD
  - CREEK
  - FENCE & GATE
  - CHAIN BARRIER
  - CONCRETE OR CINDER BLOCK RETAINING WALL
  - THINER RETAINING WALL
  - SIGN
- SHADED AREAS ARE UNDER CONSTRUCTION

This document has been approved for release  
to the public by:

Dan R. Hammi 4/2/96  
Technical Information Officer Date  
ORNL, TN

20003	
BUILDINGS & ROADS	
JANUARY 1, 1954	
OAK RIDGE NATIONAL LABORATORY	
CARBIDE AND CARBON DIVISION	
UNDER CARBIDE AND CARBON DIVISION	
OAK RIDGE, TENNESSEE	
THIS DRAWING HAS BEEN CLASSIFIED AS	FOR OFFICIAL USE ONLY
RECEIVED	CL-521